The Effectiveness of Head Injury Facilities on Family Adaptability and Differentiation

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Statement of the Research Problem

Traumatic head injuries are the nation's second leading cause of neurological impairment and the leading cause of death and disability for individuals under 34 years of age. The head injuries often involve motorcycle or automobile accidents. However, during the last decade, there has been an increase of head injuries resulting from domestic violence, child abuse, and aggression, especially related to gang warfare.

The impairments that result from a severe head injury include not only physical difficulties and deficits, but also cognitive and emotional problems that are atypical of other disabilities. Not only do these impairments greatly effect the head injured survivors, but also their family members. Changes in the personalities and capacities of brain injured patients with associated changes in the families' financial and social situations tend to create significant emotional and practical burdens on these patients' close family members. The family of a head injured person experiences more stress not only as a result of the head injury, but also because of the unusual, sudden, and unexpected occurrences that caused injury. The more sudden and unexpected the injury to the survivor, the greater the amount of family shock and subsequent difficulty of hypothesized family adaptability and differentiation.

When a traumatic brain injured person is discharged from the hospital, the family members often require aport-discharge head trauma facility to enhance family functioning. The patient's family members often experience such reactions as denial, stress, and fantasy, not only during the hospital stay, but long after the patients' rehabilitation stay is completed. Although the number of post-discharge facilities has increased within the past decade, there continues to be a shortage and unavailability of these in many parts of the country. Furthermore, many hospitals provide adequate rehabilitation facilities for the head injured survivor, but many do not provide sufficiently strong knowledge bases for families who are unable to understand the effects of a head injury.

Because of the problems of the head injured person and those experienced by the family members, the outpatient head injury or day treatment facility becomes consequential to both. Although there is considerable available literature to substantiate the existence of such treatment facilities for additional rehabilitation of the head injured survivor, there is a dearth of studies depicting the effectiveness of such facilities for family adaptability or adjustment. The problems become especially overwhelming for families since many times the head injured

patient is discharged from the rehabilitation hospital because of good physical functioning. But the hospital is unable to further rehabilitate the patient, who continues to be affected with cognitive, emotional, and social deficits. The components of family functioning measures in this study are: family adaptability defined as "the ability of the family system to change roles, rules, and relationships to deal with the traumatic brain injury stressor" and family differentiation referred to as the "ability of the family member to be autonomous and yet feel emotionally connected to the rest of the family member."

Research Questions

Research confirms that there has been a tendency by some rehabilitation facilities to concentrate solely on the physical handicap of the patient. The literature also substantiates that family members are more upset by the cognitive and emotional deficits of the patient than by the physical impairments. Studies have also concluded that the severity of the head injury is predictive of family stress. Because other studies have determined high levels of post-traumatic changes found in the patient late after the head injury, it is suggested that family members or caretaking relatives may be confronted with a high degree of burden or stress after the patient is discharged from the hospital. Other studies demonstrate that families who do not have access to the availability of outpatient head trauma facilities must themselves attempt to cope with the daily needs of their head injured relatives with emotional and cognitive impairments.

The research questions examined in this study are:

1. Do family adaptability and differentiation vary with the severity of the head injury?

2. What types of adaptability and differentiation characterize the "head injured" family?

3. To what extent do family adaptability and differentiation vary with family stress?

4. Do the relatives' adaptability and differentiation change throughout the year?

5. Are outpatient head injury treatment facilities actually conducive to family adaptability and differentiation?

Hence, the two hypotheses tested in this study are: Post-discharge head injury facilities increase family adaptability; and Post-discharge head injury facilities increase family differentiation.

Methodology

In this research, a convenience sample was utilized and a quasi-experimental design was employed to study a treatment group of thirty-two families of head injured persons from eight facilities. A control group of the same number of families not attending any post-discharge facility was also studied. In this study, the term "head injury" refers to the injury of any patient admitted to a hospital as a result of a severe blow to the skull that resulted in actual injury to the brain cells. The term "head injury" also encompasses hypoxia or oxygen starvation to the brain that resulted in cognitive impairments and generalized weakness for those diagnosed with such conditions. The term "brain injury" refers to the physical trauma to the head of all head injury patients, but excludes the injuries of those patients who have been diagnosed as having had strokes and/or excisions of brain tumors. All head injury patients who suffered left or right sided weakness with loss of speech as a result of the head injury were included in this study.

The term "family" is defined as any relative(s) or unrelated care giver(s) actually residing with the head injured outpatient after discharge from the medical or rehabilitation facility. One adult family member (at least eighteen years of age) for each head injured person was selected for participation. The tests were administered to one available parent of the head injured child in cases where there were parents involved. In situations where there was a spouse of a head injured person, the tests were administered to the spouse.

The independent variable of specialized treatment versus non-treatment refers to any post-discharge head injury facility that specifically rendered treatment to the head injured outpatient's cognitive, emotional, and social needs while the person was physically residing with the family. Such a facility was an agency recognized by the National Head Injury Foundation and listed in the official 1990 edition of The National Directory of Head Injury Rehabilitation Services. Families of the head injured were referred with their head injured relatives for outpatient treatment by the inpatient treatment physicians. The need for treatment was based on the hospital staff's recommendations. Patients and families were only accepted for outpatient treatment if they had funding to defray the costs for treatment where such treatment was accessible. Otherwise, head injured outpatients and their families were assigned to the control group. Consequently, patients and families were not randomly assigned in this study.

The eight head trauma outpatient facilities were selected from suburban Chicago, Illinois; Merrillville, South Bend, and Indianapolis, Indiana; Cincinnati, Ohio; Milwaukee and Madison, Wisconsin; Dubuque, Iowa; and St. Paul, Minnesota. Two additional facilities were selected during the study to compensate for low censuses of outpatients at the eight selected outpatient head injury facilities. Four families of four head injured patients were selected from each of the eight facilities. If four family units (patients and family member) could not be made available within thirty days beginning with the first month of the study, an additional

thirty days were allowed to attempt to obtain a total of four family units from each facility. The control group also included patients and families from hospitals in Tennessee and Kentucky. Although the facilities were located in major cities, the families who were studied resided in urban, suburban, and rural areas.

The design involved a pretest of the trauma severity measured by coma days and functional status of the head injured person as well as the family stress, adaptability, and differentiation statuses of the family at the time of the discharge of the head injured person from the hospital or rehabilitation center. The length of coma days was employed to measure the severity of the head injury of the patient in accordance with literature suggesting that this criterion is a more reliable and accurate indicator. Families of head injured patients who were in comas for twenty-four hours or less and who scored the minimum of three points on the Glasgow Coma Scale for that duration were included in the study. All patients who were in comas for the entire period of twenty-four hours or less were given the value of a full coma day. Coma days and patients' progress were obtained from patients' medical records, staff, or from the family members.

A posttest of all these variables except coma days was employed four months after the hospital or rehabilitation center discharge of the patient. The respondents (both head injured outpatients and caregivers) varied in age, educational years, gender, and race. Each of the family groups with head injured patients was contacted by means of a personal interview to measure the study variables. Both groups were compared on the dependent variables of family adaptability and differentiation at two different times: upon discharge of the head injured survivor from the inpatient facility and four months later, while the head injured relative was residing with family members.

Family adaptability and differentiation were measured by the Family Relations Scale of Barbarin, while patient functional ability and family stress, utilized as covariates, were measured by the Patient Functional Ability Scale of the author and Family Well-Being Assessment Scale of Caldwell. The Family Relations Scale is a self-report measure containing Likert-style items ranging from "very true" to "very untrue." Family Stress is conceptualized and operationalized in this study as not only including the individual's perception of strain, frustration, and tension in the home, but also emotional and physical disorders resulting from the stressor of the relative's head injury. The scale also is a self-report measure containing six Likert-style items ranging from strong agreement to strong disagreement.

Correlation coefficients were computed with each of the variables. Analyses of covariance were employed with pretest scores utilized as covariates and posttest adaptability and differentiation employed as dependent variables. The demographic variables of age, education, gender, and race were entered into the model since the study is a non-randomized experiment. The analysis was employed to determine if the adjusted mean scores differed significantly between the two groups (treatment and control group) and to determine partial contributions of the covariates and demographic variables to the model. A frequency analysis

was also employed to show the number of family education and therapy visits attended by the treatment group families at their respective post-discharge facilities.

Results

All of the head injured patients in the treatment group received intensive inpatient rehabilitation treatment which included: speech pathology, physical with occupational therapies and psychology with social work intervention and services. Seventy-two percent of the control group head injured patients (n=23) received intensive rehabilitation whereas the other 28% (n=8) were hospitalized in acute care units of hospitals before discharge. Thus, 86% of the total head injured patients studied (n=55) received intensive rehabilitation. Eighty-four percent of the family member informants in the treatment group (n=27) were female, whereas 69% of the control group informants (n=22) were female, comprising a total of 77% female informants (n=15).

A total of 30 head injured patients suffered traumatic brain injuries as a result of auto accidents with 16 of these listed in the treatment group and 14 in the control group. A total of 47 male and 17 female head injured patients and a total of 53 Whites, 10 Blacks, and one Native American comprised the entire sample. A total of 28 urban, 20 rural, and 16 suburban residents represent evenly distributed geographical population divisions. Approximately half of the sample size were parents of head injured children, denoted as the "parent-child" category (n=29). Sixty-six percent (n=19) of this group were single parents. The "spouse" category of 22 represented the next largest group within the sample.

The mean ages of the head injured survivors of the treatment group (29.2) and in the control group (32.6) were not markedly different so that there does not appear to be an age bias. Age also was not strongly correlated with patient functional ability in the entire sample. The overall mean for years of education was 11.7 with the years ranging from completion of first grade to the completion of eighteen years of a Master's degree equivalence. There also were two pre-school children in the sample size. A significant correlation was found between the educational years of the patient and functional ability (r=-.31). This may reflect the positive influence of higher premorbid cognitive ability or better functional potential both at the physical and cognitive levels. Gender was significantly correlated with pretest family stress with families of male patients making higher stress scores. There was no significant correlation of race with other variables.

Posttest family stress was significantly correlated with posttest outpatient functional ability indicating a greater degree of family stress in proportion to the greater degree of impairment. Further, posttest family stress and posttest family adaptability were significantly and inversely correlated indicating the greater degree of stress, the lower the family adaptability. Coma days and outpatient functional ability were significantly correlated with

family differentiation at the posttest phase indicating that fewer coma days and higher functional ability were associated with greater family differentiation. An unexpected result was found concerning the weak correlation of coma days with patient functional ability, although none of the head trauma survivors who were in comas longer than ten days were able to return to their previous premorbid level of functional ability.

The treatment group displayed improvements in all areas at the posttest phase and more remarkably in certain areas such as speech, cognitive, and emotional states. In both the treatment and control groups, high levels of family stress at both pretest and posttest levels typified the "head injured" family. This study also showed that family stress had a significant impact on family adaptability at the posttest phase, but not on family differentiation.

The mean scores of family adaptability were relatively high at both pretest and posttest phases in both treatment and control groups. However, when the other variables in the model were controlled, the treatment group had higher adaptability scores than the control group at the time of the posttest.

Although there were significant group differences from pretest to posttest with higher family adaptability scores in the treatment group, differences on family differentiation scores proved to be non-significant. Low differentiation scores in the pretest study with both groups may result from the specific items on the Family Relations Scale which defines low differentiation as enmeshment and overprotection. Nevertheless, the families in the treatment group who attended family education and therapy sessions at post-discharge head injury facilities made higher family differentiation scores at the posttest.

The findings suggest that the "head injured" family is characterized by a moderately high degree of flexibility and a moderately low level of differentness or a type of overprotective enmeshment. The finding of higher family scores in the treatment group and practical significance of higher family differentiation scores made by families attending family education and therapy sessions also support the potential usefulness of post-discharge facilities.

Utility for Social Work Practice

The findings have particular relevance for micro, mezzo, and macro levels of social work practice. Many families indicated that they lacked sufficient time to attend specialized sessions offered by the post-discharge clinic. This disadvantage increases the necessity of clinical social workers to provide an extension of services akin to the medical "house call." Such intervention measures are presently being employed in child welfare agencies to prevent child abuse and neglect. Moreover, the recent 1993 Family and Medical Leave Act may not only assist families to budget more time for themselves and their head injured relative, but also may provide a respite type of resource.

In addition to the implication for families and outpatients who are seen by the post-discharge clinics, this study also holds implications for the large number of head injured and their families who are not receiving any type of treatment in the community due to lack of finances. The reintroduction of the National Health Care Act of 1993, the proposed legislation of the Traumatic Brain Injury Act of 1994, and the pending introduction of National Health Insurance with much needed social work intervention may be conducive to improved health care measures for the "head injured" family.

A final implication involves the much needed specialization of health professionals for the head injured survivor and family. This specialization, which includes clinical social workers, is particularly necessary when the injured survivor returns home. Such specialization insists on a sufficient quantity of qualified professionals who focus on the needs of not only the head injured person, but also the "head injured" family.

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